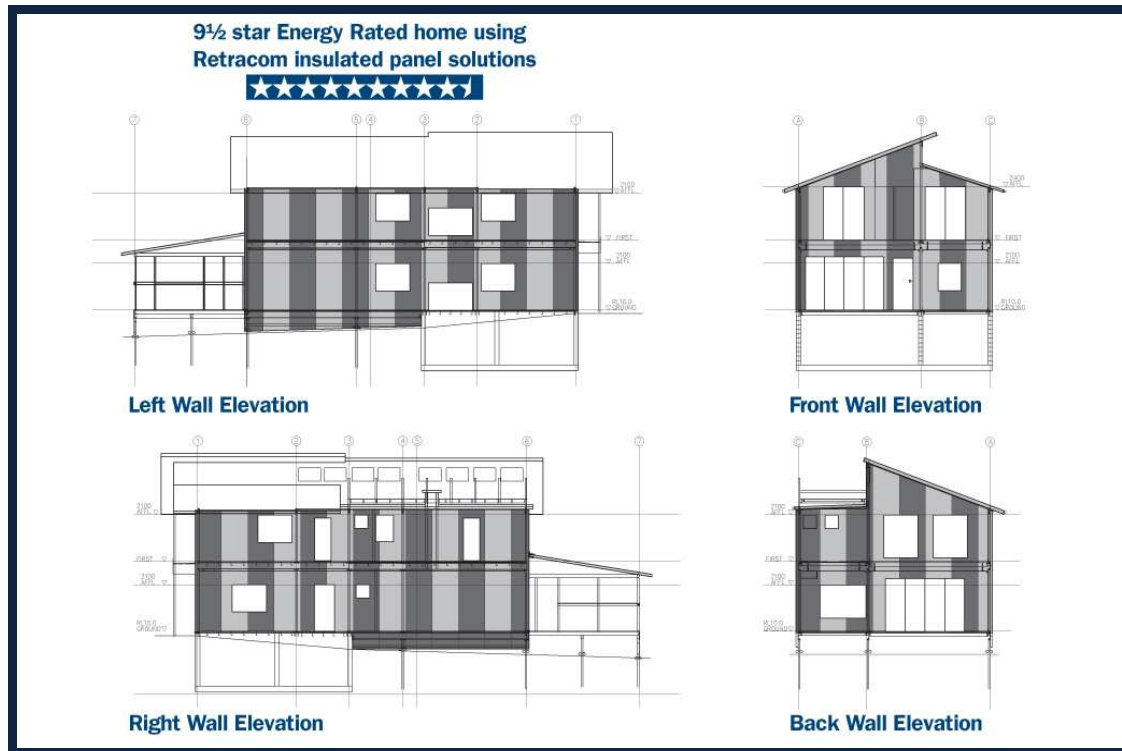


# 3.0 Retracom Insulated Panels

## BCA—Energy Efficiency (section J, Part 3.12)



### A real alternative to tilt-up, brick, timber frame and metal deck construction

Insulated Panels offer a BCA—Energy (section J) compliant alternative to conventional construction of roofs and walls that have added blanket insulation.

### Retracom Insulated Panel advantages include:

- Superior long term Total R-values
- Full “insulation envelope” is assured by eliminating thermal bridging and insulation compression issues which degrade the theoretical performance
- Fast construction
- Lower total cost
- Pre finished both sides
- Long span characteristics
- Air tight envelope

Selecting a BCA Section J compliant product is made easier using this document as a guide.

There are two methods allowed in the Code:

(1) Deemed to Satisfy (DTS)

(2) Alternative Engineered Solution

### 1. Deemed to satisfy (DTS) method

- Determine which climate zone is applicable to your project from the BCS’s maps – section 3.1.
- Determine the Class of Building - section 3.2
  - Roofs and Ceilings (Section 3.3, 3.4 and 3.5). Look up the table for the class of building and colour selection. Follow the Climate Zone column down to the thickness needed for either Flushline Mk II or Solaris®.
  - Walls (Section 3.6 and 3.7). Repeat the procedure for external walls looking up the walls and tables – section 3.6.
- Now you have the BCA—Energy (section J) DTS thickness, coordinate with the structural engineering and architectural requirements, and finalize the material selection appropriately.

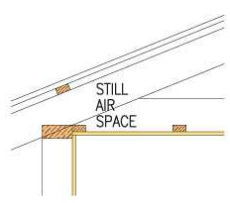
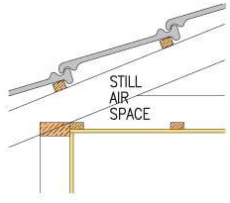
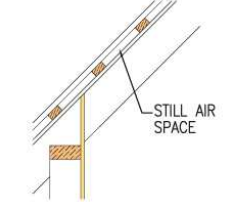
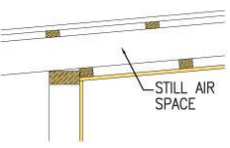
### 2. Alternative Engineered Solutions

Engineers and qualified persons may use Total R-Values contained in Section 3.8 in their analysis. The Total R-Values do not include other material linings, voids etc that may be dictated by the project design details.

# 3.0 Retracom Insulated Panels

## BCA 2010 (Vol 1 section J, Vol 2 1.3–2) Typical R-values for roofs and ceiling construction

Retracom construction		Total R-value	
		Worst direction	
	<b>Insulated panel with pre-painted Galvanised steel skin</b> Skillion < 5° 125mm Solaris	3.7	

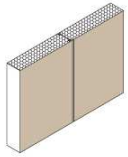
Traditional construction		Total R-value	
		Up	Down
	<b>2(a) Metal Cladding</b> 15-45° pitch + Air space + 10mm Horizontal plaster ceiling	0.39	0.54
	<b>2(b) Concrete or clay roof tile</b> 15-45° pitch + Air space + 10mm Horizontal plaster ceiling	0.41	0.56
	<b>2(c) Metal Cladding</b> CATHEDRAL 15-45° pitch + Air space + 10mm plaster board-on top rafters	0.36	0.42
	<b>2(e) Metal Cladding</b> Skillion < 5° + Air space + 10mm plaster board-below rafters	0.36	0.48

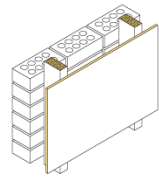
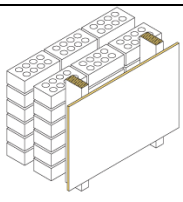
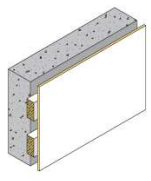
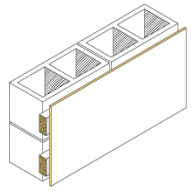
**Notes**

- BCA 2010 Tables and figs shown above, have been abbreviated for purpose of display and those selected illustrate common commercial applications. The Retracom systems are offered as a substitute building fabric.

## 3.0 Retracom Insulated Panels

### BCA 2010 (Vol 1 section J, Vol 2 1.5–2) Typical R-values for walls

Retracom construction		Total R-value
	<b>Insulated panel with pre-painted Galvanised steel skin</b> 100mm Flushline MkII	2.8

Traditional construction		Total R-value
	<b>(a) Masonry/Veneer</b> Masonry + 25-50mm air gap with 90mm stud +10mm Plaster board	0.48
	<b>(b) Cavity Masonry</b> Masonry +Cavity 20-50mm +Masonry +20-35mm air gap with wood +10mm Plaster board	0.74
	<b>(d) Reinforced Concrete Tilt Wall</b> +125mm Solid Reinforced/concrete +Air gap 20-40mm with wood +10mm Plaster board	0.48
	<b>(f) Concrete Block</b> +200mm Concrete block +Air gap 20-40mm 10mm Plaster board	2.39

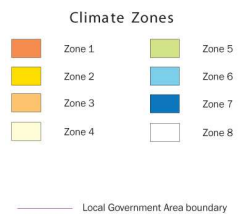
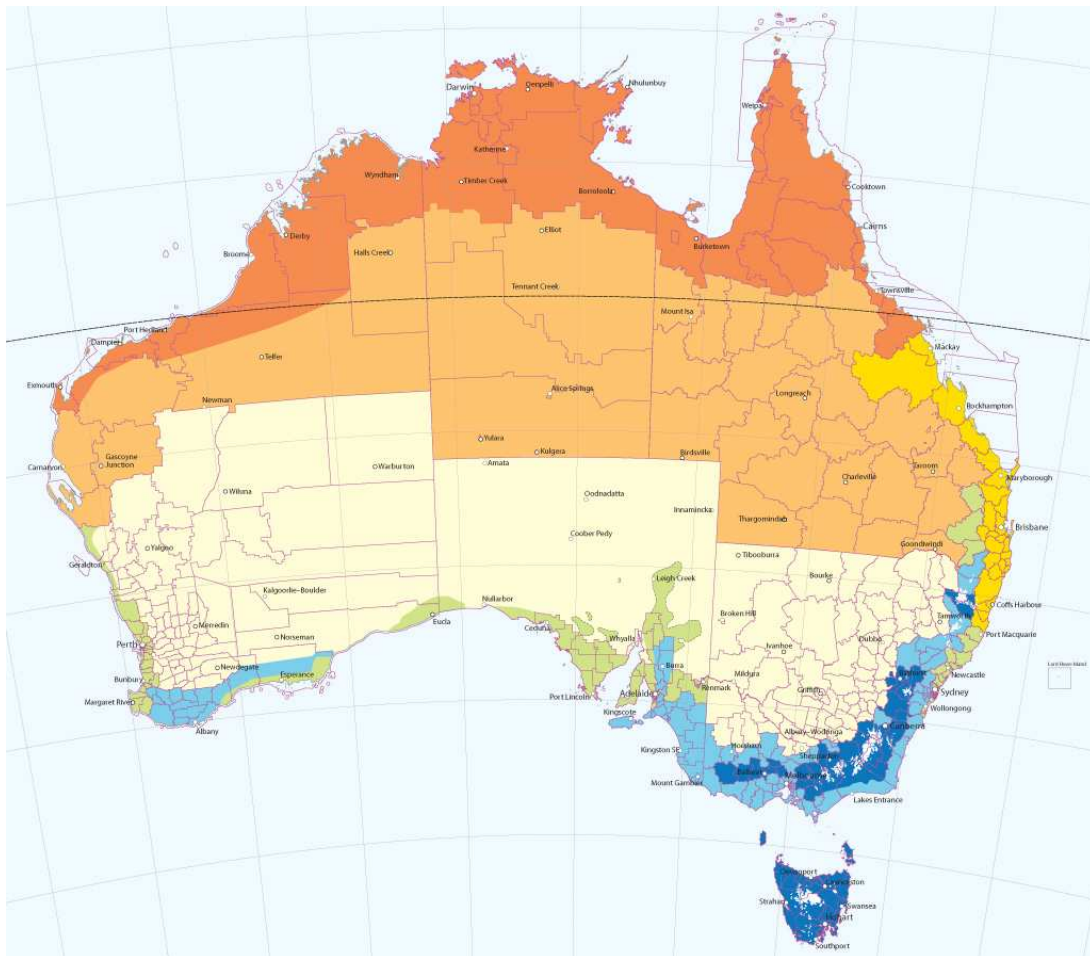
#### Notes

- BCA 2010 Tables and figs shown above have been abbreviated for purpose of display and those selected illustrate common commercial applications. The Retracom systems are offered as a substitute building fabric.

# 3.1 Retracom Insulated Panels

## BCA 2010 Climate Zones Australia

Refer to [www.abcb.gov.au](http://www.abcb.gov.au). Search “Climate Zone Maps” for detailed State and Regional Maps.




**ADES**  
Building Australia's Future  
[www.abcb.gov.au](http://www.abcb.gov.au)  
BCA 2009

**Notes**

- The document has been compiled as an aid only and the information should be verified before it is put to use by any person. The user should also establish the applicability of the information or advice in relation to any specific circumstances.

## 3.2 Retracom Insulated Panels

### Classification of buildings/structures

Class 1	1a. A single residential dwelling 1b. A boarding house, guest house or hostel
Class 2	Two or more separate dwellings in a building
Class 3	Residential buildings other than 1 or 2
Class 4	The dwelling part in a building of Class 5, 6, 7, 8 or 9
Class 5	An office building
Class 6	Shop, shopping centre, restaurant or cafe, showroom or service station
Class 7	7a. Carpark 7b. Wholesale storage or goods display building
Class 8	Laboratory or production facility
Class 9	9a. Healthcare 9b. Assembly building 9c. Aged care building
Class 10	10a. Garage, carpoint, shed 10b. Non-building structure eg, fence, mast, antenna, wall, swimming pool

#### Notes

- For more complete definitions refer to Clause A3.2 of the Building Code of Australia.

## 3.3 Retracom Insulated Panels

### BCA 2010 Energy Efficiency (Vol 2 Part 3.12) Deemed to Satisfy—Roof and Ceiling Panel Selection

For Class 1 and attached Class 10 buildings

Minimum Total R-value for roof or ceiling generally, where solar absorptance  $\leq 0.4$

Colour Codes	Light and very light	$\leq 0.4$	Classic Cream™	Surfmist®			
Climate Zone	1	2		3	4 and 5	6 and 7	8
		Below 300m altitude	Above 300m altitude				
Flushline Mk II	150mm	150mm	150mm	150mm	150mm	250mm	
Solaris®	150mm	150mm	150mm	150mm	-	-	
Minimum Total R-value for roof	4.1	4.1	4.1	4.1	6.3	6.3	

Minimum Total R-value for roof or ceiling generally, where solar absorptance  $> 0.4 \leq 0.6$

Colour Codes	Light and very light	$> 0.4 \leq 0.6$	Pale Eucalypt	Paperbark®	Evening Haze®	Shale Grey™	Sand-bank®	Dune®
Climate Zone	1	2		3	4 and 5	6 and 7	8	
		Below 300m altitude	Above 300m altitude					
Flushline Mk II	200mm	200mm	200mm	200mm	200mm	250mm		
Solaris®	-	-	-	-	-	-		
Minimum Total R-value for roof	4.6	4.6	4.6	4.6	6.3	6.3		

Minimum Total R-value for roof or ceiling generally, where solar absorptance  $> 0.6$

Colour Codes	Light and very light	$> 0.6$	Headland				
Climate Zone	1	2		3	4 and 5	6 and 7	8
		Below 300m altitude	Above 300m altitude				
Flushline Mk II	200mm	200mm	200mm	200mm	200mm	250mm	
Solaris®	-	-	-	-	-	-	
Minimum Total R-value for roof	5.1	5.1	5.1	5.1	6.3	6.3	

#### Notes

- Greater deemed to satisfy insulation concessions may apply for climate zones 1, 2, 3, 4 and 5 depending on insulation laid on the ceiling and roof space ventilation. Refer to BCA for details.
- Altitude means the height of the highest part of the roof above the Australian Height Datum.
- Values above refer to BCA 2010 requirement. It does not reflect the requirements of all states and local government.
- Colours shown are standard Bluescope range suitable for insulated panels. Check availability with Retracom before specifying colour.
- The document has been compiled as an aid only and the information should be verified before it is put to use by any person. The user should also establish the applicability of the information or advice in relation to any specific circumstances.
- For thicker panels, contact Retracom for fixing details.

## 3.4 Retracom Insulated Panels

### BCA 2010 Energy Efficiency (Vol 1 Section J) Deemed to Satisfy—Roof and Ceiling Panel Selection

For Class 3, 5, 6, 7, 8, 9 buildings

Minimum Total R-value for roof or ceiling generally, where solar absorptance  $\leq 0.5$

Colour Codes	Light and very light	$\leq 0.5$	Paperbark®	Evening Haze®	Shale Grey™	Sand-bank®	Dune®	Classic Cream™	Surfmist®
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Climate Zone	1, 2 and 3	4, 5 and 6	7	8
Flushline Mk II	125mm	125mm	150mm	200mm
Solaris®	125mm	125mm	125mm	-
Minimum Total R-value for roof	3.2	3.2	3.7	4.8

Minimum Total R-value for roof or ceiling generally, where solar absorptance  $>0.5 \leq 0.6$

Colour Codes	$>0.5 \leq 0.6$	Pale Eucalypt
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Climate Zone	1, 2 and 3	4, 5 and 6	7	8
Flushline Mk II	150mm	125mm	150mm	200mm
Solaris®	125mm	125mm	125mm	-
Minimum Total R-value for roof	3.7	3.2	3.7	4.8

Minimum Total R-value for roof or ceiling generally, where solar absorptance  $>0.6$

Colour Codes	$>0.6$	Headland
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Climate Zone	1, 2 and 3	4, 5 and 6	7	8
Flushline Mk II	200mm	125mm	150mm	200mm
Solaris®	150mm	125mm	125mm	-
Minimum Total R-value for roof	4.2	3.2	3.7	4.8

#### Notes

1. For class 2 and 4 buildings there is no longer a DTS building solution, refer to BCA for details.
2. Altitude means the height of the highest part of the roof above the Australian Height Datum.
3. Values above refer to BCA 2010 requirement. It does not reflect the requirements of all states and local government.
4. Total R-Values are in accordance with BCA 2010 Volume One section J1.3.
5. Adjustment of minimum R-value for loss of ceiling insulation due to exhaust fans, flues or recessed downlights may be required, refer to the BCA for details.
6. Direction of heat flow for lowest Total R-value calculated.
7. Colours shown are standard Bluescope range suitable for insulated panels. Check availability with Retracom before specifying colour.
8. The document has been compiled as an aid only and the information should be verified before it is put to use by any person. The user should also establish the applicability of the information or advice in relation to any specific circumstances.
9. For thicker panels, contact Retracom for fixing details.

## 3.5 Retracom Insulated Panels

### BCA 2010 Energy Efficiency (Vol 1 section J, Vol 2 Part 3.12)

#### Deemed to Satisfy—External Walls

For Class 1 and attached Class 10 buildings  
BCA Vol 2.

Colour Codes	All Colours		
Climate Zone	1, 2, 3, 4 and 5	6 and 7	8
Flushline Mk II	100mm	100mm	150mm
Minimum Total R-value for roof	2.8	2.8	3.8

For Class 3, 5, 6, 7, 8, 9 buildings  
BCA Vol 1.

Colour Codes*	≤0.6	Paperbark®	Evening Haze®	Shale Grey™	Sand-bank®	Dune®	Classic Cream™	Surfmist®
Climate Zone	1, 2 and 3	4, 5 and 6	7	8				
Flushline Mk II	100mm	100mm	100mm	150mm				
Minimum Total R-value for roof	2.8	2.8	2.8	3.8				

#### Notes

- \*Only applicable to climate zones 1, 2 and 3.
- Greater deemed to satisfy insulation concessions may apply to these values depending on construction, refer to the BCA for details.
- Values above refer to BCA 2010 requirement. It does not reflect the requirements of all states and local government.
- Total R-Values are in accordance with BCA 2010 Volume One section J1.5, and Volume Two section 3.12
- Direction of heat flow for lowest Total R-value calculated
- The document has been compiled as an aid only and the information should be verified before it is put to use by any person. The user should also establish the applicability of the information or advice in relation to any specific circumstances to be use by any person.

## 3.6 Retracom Insulated Panels

### Total R-values for walls, ceilings and roofs

#### Total R-values—Flushline Mk II

Walls

Thickness	Total Resistance
250mm	6.8
200mm	5.4
150mm	4.1
125mm	3.4
100mm	2.8
75mm	2.1
50mm	1.5



Ceilings

Thickness	Total Resistance
250mm	6.8
200mm	5.5
150mm	4.1
125mm	3.5
100mm	2.8
75mm	2.2
50mm	1.5

#### Total R-values—Solaris®

Roofs

Thickness	Total Resistance
150mm	4.3**
125mm	3.7
100mm	3.0
75mm	2.4
50mm	1.7



\*\*Special considerations to fixing required.

#### Notes

1. Total R-value calculation for heat flow in the worst case.
2. Additional linings and cavities may increase the Total R-value.
3. R-values are calculated using Grade 'SL' EPS.
4. Better R-values are available with higher grade EPS. Check with Retracom for details.